UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/880,207	06/13/2001	Wilhelmus Hendrikus Alfonsus Bruls	PHNL 000345	5320

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EXAMINER
ROSARIO, DENNIS

ART UNIT	PAPER NUMBER
2624	

DATE MAILED: 07/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Advisory Action *Before the Filing of an Appeal Brief*	Application No.	Applicant(s)
	09/880,207	BRULS ET AL.
	Examiner	Art Unit	
	Dennis Rosario	2624	

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED <u>22 June 2006</u> FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

1. ☒ The reply was filed after a final rejection, but prior to or on the same day as filing a Notice of Appeal. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. The reply must be filed within one of the following time periods:

    a) ☐ The period for reply expires _____ months from the mailing date of the final rejection.

    b) ☒ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.

        Examiner Note: If box 1 is checked, check either box (a) or (b). ONLY CHECK BOX (b) WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

<u>NOTICE OF APPEAL</u>

2. ☐ The Notice of Appeal was filed on _____. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

<u>AMENDMENTS</u>

3. ☐ The proposed amendment(s) filed after a final rejection, but prior to the date of filing a brief, will <u>not</u> be entered because

    (a)☐ They raise new issues that would require further consideration and/or search (see NOTE below);

    (b)☐ They raise the issue of new matter (see NOTE below);

    (c)☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or

    (d)☐ They present additional claims without canceling a corresponding number of finally rejected claims.

        NOTE: _____. (See 37 CFR 1.116 and 41.33(a)).

4. ☐ The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).

5. ☒ Applicant's reply has overcome the following rejection(s): <u>Claim 3 under Zhang et al. (US Patent 6,037,986 A)</u>.

6. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).

7. ☒ For purposes of appeal, the proposed amendment(s): a) ☐ will not be entered, or b) ☒ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.

    The status of the claim(s) is (or will be) as follows:

    Claim(s) allowed: _____.

    Claim(s) objected to: _____.

    Claim(s) rejected: <u>3,5,6 and 9-16</u>.

    Claim(s) withdrawn from consideration: _____.

<u>AFFIDAVIT OR OTHER EVIDENCE</u>

8. ☐ The affidavit or other evidence filed after a final action, but before or on the date of filing a Notice of Appeal will <u>not</u> be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).

9. ☐ The affidavit or other evidence filed after the date of filing a Notice of Appeal, but prior to the date of filing a brief, will <u>not</u> be entered because the affidavit or other evidence failed to overcome <u>all</u> rejections under appeal and/or appellant fails to provide a showing a good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).

10. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

<u>REQUEST FOR RECONSIDERATION/OTHER</u>

11. ☐ The request for reconsideration has been considered but does NOT place the application in condition for allowance because: _____.

12. ☐ Note the attached Information Disclosure Statement(s). (PTO/SB/08 or PTO-1449) Paper No(s). _____.

13. ☒ Other: <u>see attached Response to After Fianl Amendment</u>.

Response to After Final Amendment

1.   The after final amendment was received on June 22, 2006. Claims 3,5,6 and 9-

16 are pending.

Response to Arguments

2.   Applicant's arguments on page 11, line 4-6, filed 6/22/2006 have been fully

considered but they are not persuasive and states:

"While May discloses 'a set of original pixel values ($P_t M_i$) in at least one image',

there is no disclosure of 'determining a spatial spread of a set of original pixel

values'.

However, the examiner respectfully disagrees for the same reasons as the final

office action of 5/17/2006, paragraph 3. Upon further review, equation 5 of May (US

Patent 6,067,125 A) is interpreted as a difference between all pixel values of one image

that are scaled by a factor 1/sqrt(40) and the same set of pixel values of the same

image that are scaled differently, 1/8. Where the result of the difference is the claimed

spatial spread or "variance" in col. 5, line 19.

3.   Applicant's arguments on page 12, 5th thru 6th lines from the bottom, filed

6/22/2006 have been fully considered but they are not persuasive and states:

"May neither discloses or suggests determining statistics from the spatial

spread".

However, the examiner respectfully disagrees since May discloses determining

statistics (via equation (8) in column 6 that determines a "max" of the variance, σ^2, of

equation (5) where the max or maximum is interpreted as the claimed statistic) from the

spatial spread (or the "variance" in col. 5, line 19 of equation (5)).

Claim Rejections - 35 USC § 102

4.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5.   Claims 3,5,6 and 9-14 are rejected under 35 U.S.C. 102(e) as being anticipated

by May (US Patent 6,067,125 A).

Regarding claims 1, May discloses a method of noise filtering an image

sequence (V1), comprising the steps of:

a)   determining a spatial spread (Equation (5) in column 5) of a set of original

pixel values (P_t, M_i) (Fig. 2, numerals 201a-201e and represented as "p_i" in equations

(3) in column four and (6) in column five.) in at least one image (fig. 2, num. 200) of the

image sequence (V1) (Fig. 1, num. 105), said spatial spread being a measure based on

differences between pixel values in an image (see paragraph 2, above);

b)   determining statistics (Fig. 1, num. 102 determines "statistics" in col. 4, line 39 or "variance σ^2" in col. 5, line 19) from said spatial spread in said at least one image of the image sequence (v1); and

c)   calculating at least one filtered pixel value (P_t') ("w_i" in col. 5, line 30) from the set of original pixel values (P_t, M_i) obtained from said at least one image, wherein the original pixel values (P_t, M_i) are weighted (via "α" of equations (6) and (7) in column 5) under control of the statistics (via the above mentioned variance σ^2 in equation (7) in column 5)

d)   wherein said method further comprises the step of:

d1)   determining a temporal spread (S_{temp}) (Equation 10 in column 6) of a pixel (P_t) ("$P_i^{(o)}$" in equation 10) of the set of original pixel values (P_t, M_i) and a corresponding pixel ("$P_i^{(-1)}$" in equation 10) from at least one other image of the image sequence and

e)   wherein a spread (S) is a sum of absolute differences (As shown in equations (4) and (5). Note that the claimed absolute differences is interpreted as a squaring function shown in equations (4) and (5).), a given absolute difference being obtained by subtracting (as done in equation (5)) an average pixel value (or the mean of equation (3) that is represented in equation (5) as u_s^2) from a given original pixel value (P_t, M_i) (or "ss" of equations (4) and (5) where ss represents at least one pixel value).

Regarding claim 5, May discloses the method of noise filtering as claimed in claim 3, wherein the set of original pixel values (P_t, M_i) includes a central pixel value (P_t) and surrounding pixel values (M_i) (as shown in fig. 2), wherein as a result of the noise filtering, the central pixel value (P_t) is replaced by the filtered pixel value (P_t') (upon the output of fig. 1,num. 104).

Regarding claim 6, May discloses the method of noise filtering as claimed in claim 3, wherein the step of calculating comprises the steps of:

a)   weighting the set of original pixel values (P_t, M_i) (via "α" of equation six.) under control of the statistics to obtain a weighted set of pixel values (P_t, N_i) ("αp_i" of equation six.); and

b)   furnishing the weighted set of pixel values (P_t, N_i) to a static filter ("Wiener filter" in col. 5, line 26), in which the at least one filtered pixel value (P_t') is calculated from the weighted set of pixel values (P_t, N_i) (As shown in equation six.), and

c)   wherein the set of weighted pixel values (P_t,N_i) is obtained by taking, for each pixel value in the set of original pixel values (P_t, M_i), a combination of a portion α (as shown in equation six as "αp_i".) of said each pixel value in the set of original pixel values (P_t,M_i) and a portion 1-α (as shown in equation six as "(1-α)μ" where μ is related to p_i in equation three) of a central pixel value (P_t)("P_i" in equation three includes the claimed central pixel value or "observed value of the pixel itself, indicated by reference numeral 201a [of fig. 2]" in col. 4, line 12).

Regarding claim 9, May discloses the method of noise filtering as claimed in claim 3, wherein the step of calculating comprises the steps of:

a)   weighting the set of original pixel values (P_t, M_i) (via "α" of equation six.) under control of the statistics to obtain a weighted set of pixel values (P_t, N_i) ("αp_i" of equation six.); and

b)   furnishing the weighted set of pixel values (P_t, N_i) to a static filter ("Wiener filter" in col. 5, line 26), in which the at least one filtered pixel value (P_t') is calculated from the weighted set of pixel values (P_t, N_i) (As shown in equation six.), and

c)   wherein the at least one filtered pixel value (P_t') is obtained by calculating an average ("variance" n col. 5, line 19) of the weighted set of pixel values (P_t, N_i).

Regarding claim 10, May discloses the limitations of claim 10 in claims 1 and 3 above and the remaining limitation of:

wherein the spatially displaced original pixel values are weighted (in equation 6 in column 5) under control of the spatial spread (S_{spat}) (equation 5), and the temporally displaced original pixel values (P_t, P_{t1}, P_{t2}) are weighted (via "βf_i" in equation 12 in column 6) under control of the temporal spread (S_{temp}) (via equations 10 and 11 in column 6.).

Regarding claim 11, May discloses the method of noise filtering as claimed in claim 10, wherein the weighting step comprises:

a)   dividing the weighted temporally displaced original pixel values (Using equation 7 in column 5 as mentioned in col. 6, lines 31-37) to lessen their weight in the filtering.

Regarding claim 12, May discloses the method of noise filtering as claimed n

claim 10, wherein the temporally displaced original pixel values include two original pixel

values (P_{t1}, P_{t2}) (Fig. 2, num. 201e and 201a) from different fields in a same frame (F_0)

("current frame" in col. 6, line 14) and at least one original pixel value (Fig. 2,num. 201e)

of a previous frame (F_{-1}) ("previous frame" in col. 6, line 16).

Regarding claim 13 see fig. 1,num. 101.

Regarding claim 14, may discloses all of the limitations of claim 14 as discussed

in claim 1 above and the remaining limitation of:

encoding ("encoding" in col. 3, line 55) a plurality of filtered images (via "(IIR)

filter" in col. 3, line 45).

Claim Rejections - 35 USC § 103

6.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

7.   Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable

over May (or May I) (US Patent 6,067,125 A) in view of May et al. (or May II) (US Patent

5,844,627 A).

Regarding claim 15, May I teaches a method of noise filtering an image

sequence (V1), comprising the steps of:

a)   determining a spatial spread (Equation (5) in column 5) of a set of original

pixel values (P_t, M_i) (Fig. 2, numerals 201a-201e and represented as "p_i" in equations

(3) in column four and (6) in column five.) in at least one image (fig. 2, num. 200) of the

image sequence (V1) (Fig. 1, num. 105);

b)   computing means (Fig. 1, num. 102) for determining statistics (Fig. 1,

num. 102 determines "statistics" in col. 4, line 39 or "variance σ^2" in col. 5, line 19) from

said spatial spread in said at least one image of the image sequence (v1); and

c)   filtering means ("Wiener filter" in col. 5, line 26) for calculating at least one

filtered pixel value (P_t') ("w_i" in col. 5, line 30) from the set of original pixel values (P_t, M_i)

obtained from said at least one image, wherein the original pixel values (P_t, M_i) are

weighted (via "α" of equations (6) and (7) in column 5) under control of the statistics (via

the above mentioned variance σ^2 in equation (7) in column 5).

May I does not teach a means for determining a spatial spread and instead

teaches that a variance can be used in a Weiner filter in col. 5, lines 25,26. Thus, May I

suggests that something calculates the variance, but May I does not specifically show

what calculates the variance.

May II shows a means for calculating a variance in fig. 2,numerlas 201a and 202.

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify May I equation of calculating a variance with May II's teaching of a means for calculating a variance because, May II's teaching of a means for calculating a variance enables May I's equation for variance to output a variance value from May II's means for calculating a variance that can be inputted into May I's Weiner filter.

Regarding claim 16, May teaches all of the limitation of claim 16 in claim 15 above except for the remaining limitations of:

a)   receiving means for receiving filtered images ("terminal **106**" in col. 4, line 5); and

b)   a device (Fig. 1) for generating the filtered images of the image sequence.

DANIEL MIRIAM
PRIMARY EXAMINER